

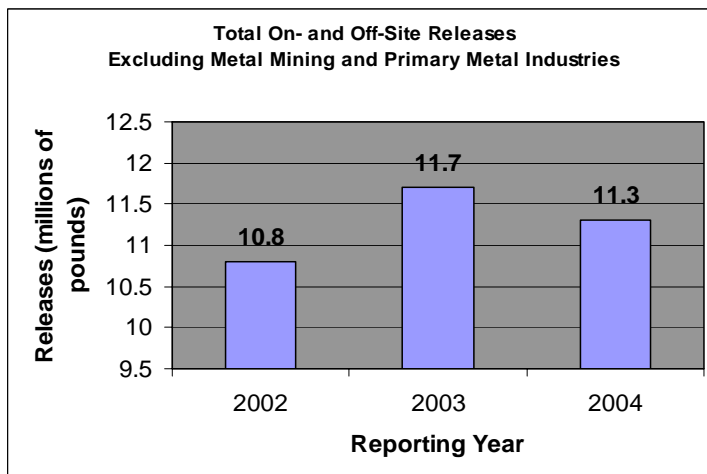
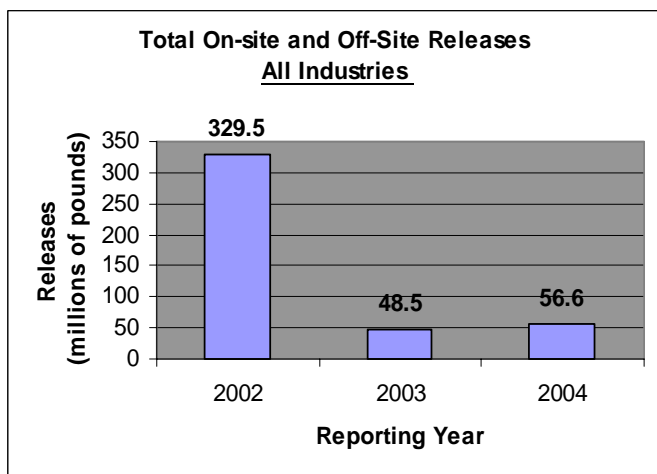


# Arizona Report: 2004 Toxics Release Inventory

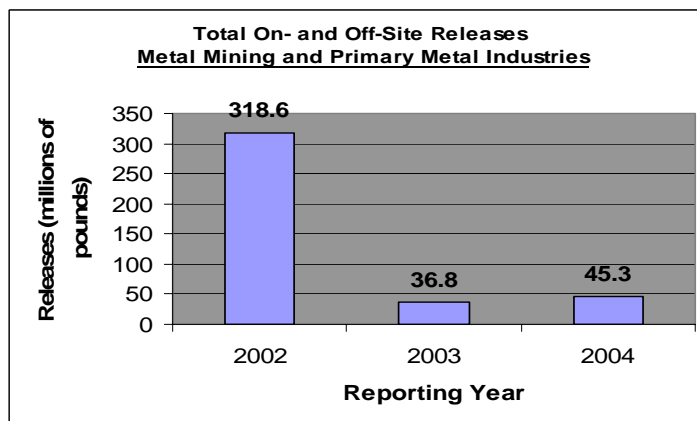
April 2006

**U.S. EPA Region 9**  
Arizona, California,  
Hawaii, Nevada, the  
Pacific Islands, and  
Tribal Nations

## Toxic Chemical Releases: 2002 – 2004\*



Total Releases for Reporting Years 2002-2004					
Year	Air	Land	Under-ground Injection	Water	Off-Site
2002	4,163,379	322,368,377	2,184,988	7,161	728,422
2003	4,805,462	42,928,698	0	7,214	759,205
2004	4,285,001	51,461,460	0	6,821	831,520



### The 2004 Public Data Release

EPA has made public the 2004 data on toxic chemicals that were released to Arizona's air, water and land. This information comes from the Toxics Release Inventory (TRI), a federal community right-to-know program. In Arizona, 324 facilities reported a total of 56.6 million pounds of toxic chemical releases.\*

Facilities that meet certain criteria must report the amounts of toxic chemicals disposed of or otherwise

released on-site to air, water, land and injected underground and the amounts of chemicals transferred off-site for disposal or release. Off-site disposal or release can include land disposal at permitted hazardous waste facilities.\*\*

The data does not indicate whether a facility is violating environmental laws. Many of the facilities reporting under this program are subject to state and federal regulations designed to protect human health and the environment. For instance, Resource

\* Year to year data comparisons do not reflect changes in reporting requirements.

\*\* No adjustments were made to account for double counting that could occur as a result of off-site transfers of some TRI facilities also being reported as on-site releases at permitted hazardous waste landfills and other TRI facilities that receive the on-site transfers.

Conservation and Recovery Act (RCRA) Subtitle C Landfills, a type of permitted hazardous waste facility, must comply with stringent requirements for liners, leak detection systems, and groundwater monitoring. Disposal in underground injection wells is regulated by EPA's Underground Injection Control Program which provides safeguards so that injection wells do not endanger current and future underground sources of drinking water.

### **Releases and Risk**

It is important to note that a release should not be directly equated with risk. To evaluate risk, release data must be combined with information about site-specific conditions, exposure, and chemical toxicity. TRI chemicals vary widely in toxicity. High volume releases of less toxic chemicals may pose less environmental risk than lower volume releases of highly toxic chemicals. Increases in on-site releases at permitted hazardous waste facilities may indicate a reduction in risk.

### **Industries**

A facility is subject to TRI reporting requirements if it: has 10 or more full-time employees; is classified under a reportable Standard Industrial Classification (SIC) code; and manufactures, processes, or otherwise uses any of the listed toxic chemicals in amounts greater than the threshold quantities. For most chemicals (excluding Persistent Bioaccumulative and Toxic (PBT) chemicals) the thresholds are 25,000 pounds for manufactured or processed, and 10,000 pounds for otherwise used.

Manufacturing industries have been reporting their releases since 1987, and federal facilities started reporting in 1994. In 1998, an additional seven industry sectors began reporting their toxic chemical releases for the first time. These sectors are metal and coal mining, electricity generation, commercial hazardous waste treatment, solvent recovery, petroleum bulk terminals, and wholesale chemical distributors.

### **Arizona's Releases**

On April 2, 2003 the District Court for the District of Columbia issued a decision in *Barrick Goldstrike Mines, Inc. v. Whitman*, (Civ. Action No. 99-958 (TPJ)), regarding the TRI reporting obligations of mining facilities. The court determined that non-PBT chemicals present in waste rock are eligible for the de minimis exemption. The de minimis exemption states that a facility is not required to consider the quantity of a toxic chemical present in a mixture if it is below 1% of the mixture, or 0.1% of the mixture in the case of a toxic chemical which is a carcinogen. Prior to the decision mining facilities were required to consider all concentrations of toxic chemicals in waste rock.

Many mines extract, move, store, process, and dispose of large amounts of waste rock and ore, materials which often contain low concentrations of naturally occurring metals. The vast majority of this material is placed in surface impoundments or on the land, and the metals are reported as on-site releases to land.

In 2004, Arizona facilities reported an 11% or 520 thousand pound decrease in air releases and a 5% or 393 pound decrease in water releases. There was a 10% or 72 thousand pound reported increase in off-site releases.

Arizona saw a reported increase of 20% or 8.5 million pounds in on-site land releases. Metal mining and primary metal facilities (SIC codes 10 and 33) make up 80% of total on-site and off-site releases and have reported a 24% increase in on-site land releases (8.6 million pounds). The copper mines are primarily responsible for this increase. One copper mine, Phelps Dodge Miami Inc., reported a 7.9 million pound increase in on-site land disposal.

Facilities that were not in the metal mining and primary metal industries reported decreases in total on-site and off-site releases. In reporting year 2004, these facilities reported a 3% decrease in total releases (409 thousand pounds). This was driven by a 6% decrease in reported air releases (243 thousand pounds). The non-metal mining and non-primary metal facility with the greatest decrease in air releases was

Arizona Electric Power Cooperative Inc., with about 120 thousand pounds fewer air releases.

### **Persistent, Bioaccumulative, and Toxic Chemicals**

In the year 2000, TRI was expanded to include additional Persistent Bioaccumulative and Toxic (PBT) chemicals and to require reporting for these chemicals at lower thresholds, ranging from 0.1 grams to 100 pounds. PBT pollutants are toxic chemicals that persist in the environment and bioaccumulate in food chains, posing risks to human health and ecosystems.

In Arizona, 5.8 million pounds of total on-site and off-site releases of PBT chemicals were reported. This is a 16% increase over 2003. The reported increase in lead and lead compounds was primarily responsible for this change.

In determining release quantities for metal compounds, facilities only consider the primary metal portion of the compound. For instance, a facility reporting for lead compounds only reports the lead portion of the lead compounds released. Hence, the table below gives combined values for lead and lead compound releases and mercury and mercury compound releases. The PBT chemicals are ranked by 2004 total releases. The data is in pounds for all chemicals except dioxin and dioxin compounds, which is in grams.

### **PBT Chemical Releases**

*Releases of persistent, bioaccumulative and toxic (PBT) chemicals in pounds  
Dioxin and dioxin-like compounds data are not in Toxicity Equivalence (TEQ).*

Chemical	Total On- and Off-Site Releases		Percent Change
	2003	2004	
Lead and Lead Compounds (in pounds)	4,883,628.19	5,665,601.58	16 %
Polychlorinated Biphenyls (PCBs) (in pounds)	83,520.00	83,746.00	0 %
Mercury and Mercury Compounds (in pounds)	9,661.89	4,217.32	- 56 %
Polycyclic Aromatic Compounds (PACs) (in pounds)	724.50	1,048.68	45 %
Benzo (G,H, I) Perylene (in pounds)	1.17	1.19	2%
Tetrabromobisphenol A (in pounds)	3,833	---	---
Dioxin and Dioxin-like Compounds (in grams)	39.7983	40.3653	1 %

### **Lead and Lead Compounds**

Starting in the year 2001, lead and lead compounds were reported as Persistent Bioaccumulative and Toxic (PBT) chemicals. While lead and lead compounds have been on the list of reportable chemicals since 1987, for the year 2001 the reporting threshold was drastically lowered (from 25,000 pounds manufactured or processed, and 10,000 pounds otherwise used to 100 pounds manufactured, processed or otherwise used). As a result, additional facilities are required to report releases of lead and lead compounds.

A 782 thousand pound increase in reported lead and lead compounds drove the increase in PBT releases in 2004. Approximately 5.7 million pounds of total on-site and off-site releases of lead and lead compounds were released in Arizona. 96% percent of lead and lead compound releases were from on-site land disposal at metal mining and primary metal facilities. Two of these facilities, ASARCO LLC Mission Complex and Phelps Dodge Sierrita Inc., reported a combined 944 thousand pound increase in on-site land disposal for lead compounds.

There was a 51% or 15,567 pound reported decrease in lead and lead compound air releases from 2003 to 2004. This is due to a 9,920 pound reported decrease at Phelps Dodge Miami and a 5,539 pound reported decrease at ASARCO Ray Complex Hayden Smelter & Concentrator.

### **Mercury and Mercury Compounds**

There was a 56% or 5,445 pound reported decrease in total releases of mercury and mercury compounds. This change was primarily driven by a decrease in on-site land releases though there was a reported decrease of mercury and mercury compounds across all media. Phelps Dodge Bagdad Inc., one copper mine, reported a 4,805 pound decrease of on-site land releases for mercury and mercury compounds.

There was a 7% or 127 pound decrease in mercury and mercury compound air releases in 2004. This is due to a combined 124 pound decrease in mercury and mercury compound air releases at Cholla Power Plant and Arizona Electric Power Cooperative.

### **Top Facilities for Releases**

The top 10 facilities for total on-site and off-site releases, for all chemicals, in Arizona are:

- ① Phelps Dodge Miami Inc. (Claypool, Gila County) with 21.4 million pounds.
- ② ASARCO Inc. Ray Complex Hayden Smelter & Concentrator (Hayden, Gila County) with 11.7 million pounds.
- ③ Phelps Dodge Morenci Inc. (Morenci, Greenlee County) with 5.6 million pounds.
- ④ Tucson Electric Power Co Springerville Generating Station (Springerville, Apache County) with 2.9 million pounds.
- ⑤ Cholla Power Plant (Joseph City, Navajo County) with 2.1 million pounds.
- ⑥ Navajo Generating Station (Page, Coconino County) with 1.9 million pounds.
- ⑦ Phelps Dodge Sierrita, Inc. (Green Valley, Pima County) with 1.9 million pounds.
- ⑧ ASARCO LLC Mission Complex (Sahuarita, Pima County) with 1.5 million pounds.
- ⑨ Phelps Dodge Bagdad, Inc. (Bagdad, Yavapai County) with 1.4 million pounds.

- ⑩ ASARCO LLC Ray Operations Mine (Kearny, Pinal County) with 1.1 million pounds.

The top 10 facilities for total on-site and off-site releases, for PBT chemicals, in Arizona are:

- ① Phelps Dodge Sierrita Inc. (Green Valley, Pima County) with 1.2 million pounds.
- ② ASARCO LLC Mission Complex (Sahuarita, Pima County) with 1.2 million pounds
- ③ ASARCO LLC Ray Complex Hayden Smelter and Concentrator (Hayden, Gila County) with 1.1 million pounds.
- ④ Phelps Dodge Miami Inc. (Claypool, Gila County) with 1.0 million pounds.
- ⑤ ASARCO LLC Ray Operations Mine (Kearny, Pinal County) with 714 thousand pounds.
- ⑥ Phelps Dodge Bagdad Inc. (Bagdad, Yavapai County) with 155 thousand pounds.
- ⑦ Earth Protection Services (Phoenix, Maricopa County) with 77 thousand pounds.
- ⑧ Romic Environmental Technologies Inc. (Chandler, Maricopa) with 57 thousand pounds.
- ⑨ Tuscon Electrical Power Co. Springerville Generating (Springerville, Apache County) with 53 thousand pounds.
- ⑩ Cholla Power Plant (Joseph City, Navajo County) with 35 thousand pounds.

### **On-line Access**

For national information on data releases, see:  
<http://www.epa.gov/tri>

The TRI data is available through Envirofacts Warehouse, EPA's premier internet site for distributing environmental information at:  
<http://www.epa.gov/enviro>

or the TRI Explorer tool:  
<http://www.epa.gov/triexplorer>

For general information on the Toxics Release Inventory, including reporting requirements for businesses, go to:  
<http://www.epa.gov/region09/toxic/tri>

For additional information on dioxin, go to:  
<http://www.epa.gov/ncea/dioxin.htm>

For more information on the EPA's PBT Chemicals Program, go to:

<http://www.epa.gov/opptintr/pbt/>

**Information and Assistance**

We are happy to answer your questions and assist you in learning more about the TRI Program in Region 9.

**U.S. EPA Region 9, TRI Program**

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